A ſhort Diſcourſe concerning Concoction: Read at a Meeting of the Royal Society, May 1699, *by* Clopton Havers, *M. D. Fellow of the Royal Society.*

THE Manner in which the Digeſtion of the Aliment is performed, is a thing not very eaſie to be underſtood and explain'd. However, it has not eſcap'd the Conjectures of ſome Philoſophical Men, who having curiouſly obſerv'd the *Phænomena* of Nature, and enquired into their Cauſes, have, amongſt other things, endeavour'd to account for this. But their Sentiments about it have been various, and the Hypotheſis, by which they have ſtudied to explain it, very different. Some have thought the Concoction of the Food to be a kind of Elixation; and that the groſſer and more ſolid Parts being as it were boiled in the Liquid by the Heat of the Stomach, and the Parts adjacent to it, as the Liver, Spleen, and Omentum, are by a long and continued Elixation firſt render'd more tender, and then colliquated, and diſſolved into minuter Particles, ſo as to mix more equally with the fluid, and with that to make one Pulpament, or chylous Maſs. And *Hippocrates*, tho' he does not plainly call it an Elixation, yet ſeems to attribute the Concoction of the Food to the Heat of the Stomack, as the Cauſe of it: *Sect.* 4. *Libro de ſalubri victûs ratione.* So where he takes Notice of the voiding of ſuch Fœces as appear to be like the Food that has been eaten, he adds, *Conſtat enim, ſanè ventriculum, ciborum copiam, ut concoquat, calefacere non poſſe.* And there are other Paſſages in the ſame Book, from which we may conclude, that he ſup-

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pos'd the Heat of the Stomach to be the great Cauſe of the Digeſtion of the Food.

There are others that make the Stomach it ſelf to be the great Inſtrument of Digeſtion, but in a different manner: And they ſuppoſe it to be perform'd by an Attrition, as if the Stomack, by thoſe repeated Motions, which are the neceſſary Effects of Reſpiration, when it is diſtended by the Aliment, did both rub or grind off ſome minuter Particles from the groſſer Parts, and by continually agitating the Maſs of Food, make thoſe Parts, which are not contiguous to the Stomack, ſtrike one againſt another, and break one another in pieces, until they are all attenuated. It is evident enough, that the ſides of the Stomack do in Expiration preſs upon the Contenta, ſo as to oblige, at leaſt ſome Parts of them, every time the Muſcles of the Abdomen are contracted, to move and ſhift their Places. So in Inſpiration, when the Diaphragme and Liver preſs upon the upper Part of the Stomack, the Aliment muſt be moved again. So that by theſe reciprocal Motions, that part of the Food, which is contiguous to the Stomack, and moves in a Line parallel to it, muſt rub againſt it: And all the other Parts being moved by ſuch a Compreſſion, as gives them a different Tendency, it is certain they muſt be continually ſtriking one againſt another. And for Bread, and ſuch Things as are made of Flower, that will be ſoften'd and diſſolv'd with any common Liquid, that Agitation of the Stomack, which moves them in Reſpiration, might ſeem ſufficient to break and diſſolve them, when they are ſufficiently moiſten'd with a Fluid. Yet this cannot be thought enough to break and digeſt Fleſh-meat, Fruits, or any other thing that will not be ſoftned and diſſolv'd in Water, or ſome ſuch Liquid. But altho' this Motion of the Aliment, cauſed by Reſpiration, does not actually digeſt it, yet it has a great

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and neceſſary Uſe in Concoction, and makes all the groſſer Parts, as they are attenuated, mix equally with the Fluid.

Some think that the Bilious Juice; others, that the Spirits, are chiefly concern'd in this Affair. *Galen*, in his Book *de Naturalibus Facultatibus*, makes it to be the Effect, not of one, but of ſeveral Cauſes; as, a Pituitous Juice in the Stomack, the Bile, &c. which appears from what he has ſaid, and the Tranſlator thus render'd: " *Verum quanto ii (cibi) qui manſi ſunt, iis,* " *qui inhæſerunt, magis ſunt alterati; tanto etiam his* " *magis ii, qui devorati ſunt. Siquidem incomparabilis* " *erit horum alterationis exceſſus, ſi & quæ in ventre eſt* " *Pituita, & Bilis, & Spiritus, & Calor, & tota Ven-* " *tris ſubſtantia, æſtimentur.*

Some there are that will have the Food to be diſſolv'd by a Menſtruum, which is ſupply'd from the Glands of the Stomack, or ſome other way: But thoſe that do ſo far agree in the General, as to think Concoction is perform'd by a Diſſolvent, do differ in their Notions of the Nature of the Menſtruum: For there are ſome that ſuppoſe it to be an Acid, which does erode the groſſer Parts of the Food, and diſſolves them in the ſame manner as Vinegar, Spirit of Vitriol, or any ſuch-like Acid, will diſſolve even ſo ſolid a Body as Iron. And it cannot be deny'd, but that Oil of Vitriol will diſſolve Fleſh-meat, and reduce it to a Pulp: But it is not to be ſuppos'd that the Fibres of the Stomack can admit any ſuch ſtrong and corroding Acid, without ſomething to correct it, but it muſt be injur'd in its Tone, and labour under great and extraordinary Pains. Neither does ſuch a Menſtruum, tho' it will digeſt ſome things, ſeem capable of diſſolving ſo great a Variety of Things as we eat, eſpecially when a great many of them are of a contrary Nature. Some will have the Menſtruum to be a

nitro-aëreous Spirit, that is, quick, and ve penetrating, and included in its proper Vehicle; which, being in its own Nature apt to penetrate the Maſs of the Aliment, does diffuſe it ſelf through the Whole, and breaking the Vinculum of the more ſolid Parts, does diſſolve their Compages. By others, it is thought to be ſome Saline Juice in the Stomack, by which the Parts of the Aliment are divided and diſſolved, and thoſe which are fit for Nouriſhment, are volatiliz'd.

Laſtly, There are ſome others who reject the Opinions I have already mention'd, and ſuppoſe the Digeſtion of the Food to be perform'd by the Benefit of a Ferment, which, when it is mix'd with the Aliment, excites in the Maſs an inteſtine Motion, and the different and contrary Motions or Tendency of the Parts making ſome kind of Colliſion, gradually break off Particles from the Groſſer, and more ſolid Parts, till they are ſo attenuated as to be apt to mix more equally with the Fluid, and with them to make one ſoft or chylous Subſtance. But yet there is not amongſt them an univerſal Conſent, either about the Nature of this Ferment, or the manner how it is ſupply'd. For firſt, ſome think it to be the Remains of the Food that was laſt digeſted; which, having lain ſome time in the Stomack, after the reſt is carried down into the Inteſtines, contracts an Acid, or ſome other Quality, and is ſo alter'd as to partake of the Nature of a Leaven. And this Leaven being a Part of the Food, which has been already digeſted, is ſo ſoft and liquid as to be capable of mixing with the Aliment, which is next taken into the Stomack, and being agitated with it by the repeated Preſſures of the Diaphragme, Liver, and Abdominal Muſcles upon the Stomack in Reſpiration, does diffuſe it ſelf through the whole Maſs, and being mixed with it, like Leaven, or Yeſt added to new Wort, *&c.* puts it into a State of Fermentation,

Fermentation, and by this Fermentation, or the Expanſion of the Ferment, and the more tenuious Parts, which are firſt put into Motion by it, thoſe which are more ſolid, and with which they are intermix'd, are rent, and divided, and ſo attenuated, as to become a ſoft and pulpous Matter. And altho' the greateſt part of the Food, that is thus broken and concocted, is by the Contraction of the Fibres of the Stomack preſs'd into the Duodenum, yet they do not contract themſelves ſo as to force out all the Aliment, but leave between the *Rugæ* or Folds, on the inſide of the Stomack, a ſufficient Quantity to be a Leaven to the next Meal; and ſo from time to time.

Some have a Notion, That this Ferment, or Principle of Fermentation, is in the Aliment it ſelf; which being a Congeries of Matter, conſiſting of various Parts of a different Nature, is no ſooner encloſed in the Stomack, and digeſted in the Heat of that, and the adjacent Parts, but the more ſpirituous and ſubtil Particles are put into motion both from that Warmth, and the Difference of their Natures, and enter upon a Fermentation. And ſo by their inteſtine Commotion, and the Violence they offer to thoſe Parts which oppoſe the Tendency of any of them, they break and diſſolve what is more ſolid.

Again: Some ſuppoſe, that this Ferment is ſupply'd from the Glands of the Stomack.

And Laſtly, Others, and perhaps with much better Reaſon, contend for the Saliva, and make that to be the Ferment, which ſerves principally for the Digeſtion of the Food; which in Maſtication being mix'd with our Aliment, is with that carried down into the Stomack, where the Parts of it being put into Motion by a kindly and agreeable Heat, they do ferment with, and exagitate firſt thoſe Parts of the Food which are moſt

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apt to ferment with it, and then both conſpire to break and diſſolve the groſſer and more ſtubborn Parts. And *Galen*, in the Book I have before-mentioned, plainly allows that the Saliva is concern'd in the Buſineſs of Concoction, tho' he ſuppoſes the Alteration, which is produc'd by this Juice, to be made in the Mouth, as appears from theſe Words: *Quæ (alteratio) in ore agitur mutat quidem id (nutrimentum) in alteram ſpeciem manifeſtè, non tamen ad perfectionem tranſmutat—— Qui manſi ſunt Cibi primum quidem hâc Pituitâ (oris) imbuuntur, & cum eâ miſcentur—— Itaque majorem mutationem conſecuti ſunt, quam ii, qui in vacuis dentium intervallis fuere impacti.*

Now I have given this ſhort Account of the various Opinions of ſome Ingenious Men, concerning the Manner how Concoction is perform'd; I come now to propoſe my own Hypotheſis, by which I ſhall endeavour to explain it.

In order to the more eaſie and effectual Digeſtion of the Food, Nature has appointed ſome Parts for the breaking our Aliment, and reducing whatever is groſs into ſmaller Parts, before it is put upon Digeſtion: Others to ſupply the Ferment, by which it is to be diſſolv'd and concocted, and which, before it comes to be included in the Stomack, does moiſten, and make it more ſoft, that it may more eaſily be penetrated and broken by thoſe Parts which ſerve to divide every Morſel into ſmaller Pieces, and prevents the Inconvenience and Trouble which would ariſe from the Nouriſhment ſticking about or between them, when it is dry or viſcous.

For the breaking of that part of our Food, which is not liquid, Nature has furniſh'd us with Teeth, and thoſe of two ſorts: For ſome are ordain'd to divide and break

break off ſmaller Morſels from a larger Maſs; others are made for the grinding thoſe Morſels into much ſmaller parts. The Teeth, which ſerve to break off Pieces of a convenient Magnitude from a larger Maſs, are of two ſorts accommodated to the Nature of the Subſtance which we eat. Theſe are the *Inciſores*, and the *Dentes Canini*. If the Subſtance, which we have to eat, be not hard, but more eaſily penetrated and divided, then the *Inciſores* are capable of making an Impreſſion upon it, and fix'd firmly enough in the Jaws to break off that Part which they take hold of. But if it be more ſolid, and not eaſily penetrated, nor any Piece without Difficulty to be ſeparated from that Body, whereof it is a Part, then we apply the *Dentes Canini*, or Eye-Teeth to it, which are not ſpread, nor have ſuch an edge as the *Inciſores*, but are ſharp and pointed like an Awle, and ſo do more readily penetrate a Subſtance that is hard, and which the *Inciſores* can ſcarcely make any Impreſſion upon. And as the Parts of a more ſolid Body are commonly with more Difficulty ſeparated, and there muſt be a greater Streſs put upon thoſe Teeth which pull it into pieces; ſo theſe Teeth are much more firmly fixed in the Jaws then the *Inciſores*, tho' they have but one ſingle Root. Beſides, the Poſition of all theſe Teeth is accommodated to their uſe, as being planted oppoſite to the Aperture of the Mouth, ſo that they may be conveniently apply'd to the Subſtance which we have to eat, before it is broken, and when it is too large to be admitted within the Mouth.

The Teeth which do by a Compreſſion and Attrition reduce the little Morſels to ſmaller parts, are from the manner in which they break the Aliment, called *Dentes Molares*, becauſe they do, like ſo many little Mill-ſtones, grind the Food between them. And that they might be render'd fit for this purpoſe, they are made broad at

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that Extremity, which ſtands out of the Gums, by which means they retain ſome Quantity of the Food between them every time the lower Jaw is pulled up and forc'd againſt the *Maxilla ſuperior*. And as they are broad, ſo they are formed with Inequalities and Protuberances, and by the motion of the lower Jaw, from one ſide towards the other, they grind what they have between them into pieces. The Poſition of theſe Teeth too is as convenient as that of the *Inciſores*, and the *Dentes Canini*: For being deſign'd to break thoſe pieces of our ſolid Food, which are taken into the Mouth, and theſe pieces, when they are compreſs'd, and moved by the *Dentes Molares*, being apt to fly out of the Mouth, if there were no Contrivance to prevent it, they are placed beyond the Aperture of the Mouth, and oppoſite to the Cheeks, which keep the Food within that Cavity, and not only ſo, but preſs it in between the *Dentes Molares* on one ſide, as the Tongue does on the other, until they have ſufficiently broken and divided it.

At the ſame time, whilſt the *Dentes Molares* are breaking the Food, there flows into the Mouth a ſalival Juice which mixes with it, and not only ſerves to moiſten it, and to render it more apt and eaſie to be divided, but ſeems to be the Ferment, by the Benefit of which the Food is diſſolved and digeſted. And therefore it is intimately mixed with it by the Teeth agitating or ſtirring them together in maſtication.

This Liquor, which we commonly call the Saliva, or Spittle, ſeems to be a Compoſition made of two ſeveral Juices, very different in their Nature. And therefore the ſeveral Parts of it are ſeparated by their proper Glands, and Nature has planted no fewer than four pair about the Mouth, which ſupply the Juices that make the Saliva; to wit, the *Parotides*, and the *Glandulæ Nuckianæ*, the *Glandulæ Maxillares internæ*, and *Sublinguales*.

guales. Whereas if the *Saliva* were but one more ſimple Liquor, a leſs Number of Glands might have been ſufficient. At leaſt there appears no Reaſon why one of every Pair ſhould diſembogue it ſelf into the Mouth ſo very near to the Orifice, by which a Gland of ſome other Pair throws in its Juice; and they are not rather all planted at more equal Diſtances from one another, ſo to flow in upon every part of the Aliment at the ſame time.

Not that I ſuppoſe, as there are four pair of ſalivatory Glands, ſo there are four ſorts of Juices ſupply'd from them, to make the *Saliva*; but, as I hinted before, that there are only two different Juices, that conſtitute it. And theſe are not only ſufficient, but more proper to excite and ſecure that Fermentation, which is neceſſary to Concoction. For we find that moſt of thoſe Fermentations, which ariſe upon Mixtures made for Experiments, are produced from the Mixture of two things, and it is not ſo eaſie to find out three or four ſuch Liquors of a different nature, as will, upon the Mixtion of them all, produce a Fermentation, and from the Omiſſion of any one of them diſcover no Diſcord or Diſpoſition to ferment. Beſides, it is certain that two do better ſecure the End, which Nature deſigns. For, if there were three or four different Juices, of which the *Saliva* naturally conſiſts, theſe muſt all have their proper Qualities preſerv'd to them, or elſe the Fermentation, which ſhould ariſe between them, will not neceſſarily follow upon their Mixture; and it is certain, that there would be more Danger, that one of three or four ſhould be depriv'd of its natural Quality, than one of two.

What Nature theſe two Juices are of, I do not pretend poſitively to determine; but ſo far as I have been able to make my Conjectures about it from Experiments, I do think one of them to be an acid Juice; the other

an oleaginous Liquor, ſomething like Oil of Turpentine. For amongſt the many Experiments I have made, there was no one that gave me ſo much Satisfaction as that which I made with Oil of Turpentine and Oil of Vitriol, tho' I try'd ſeveral other things, that will produce a Fermentation upon their Mixture. And it was for this Reaſon that I made the Experiment with Oil of Turpentine, and the other Oil.

I took a piece of raw Fleſh, and having cut it into pieces, but much larger than what our more ſolid Food is reduc'd to by due Maſtication, I mix'd ſome Crums of Bread with it, then I poured in the Oil of Turpentine to them, and upon that the Oil of Vitriol, and having ſhak'd them together, I digeſted them about four Hours in *Balneo Mariæ*, and then ſhaking them again in the Glaſs, I found the Meat diſſolv'd, and they all became a thickiſh Pulp. I could not but take notice, that Oil of Camphire (tho' it does not otherwiſe ſeem much different in its Nature from Oil of Turpentine) and Oil of Vitriol, which upon Mixture will produce an effervescence as well as the Oil of Turpentine and Oil of Vitriol, yet did not touch the Meat, upon which I poured them, ſo as in the leaſt to diſſolve them. I cannot deny but that an Acid, and a Solution of Salt of Tartar, did diſſolve ſome part of the Fleſh-meat, which I mix'd them with, but yet neither ſo ſoon nor ſo perfectly as the two forementioned Oils. And I do the rather think one of thoſe Juices, which conſtitute the Saliva, to be of the Nature of Oil of Turpentine, than of a fix'd Salt, becauſe it will correct and temper even Oil of Vitriol, ſo as to render it more tolerable to the Fibres of the Stomack. Not that I ſuppoſe the acid part of the *Saliva* to come near to the Acidity of Oil of Vitriol. For tho', when they are mix'd, they will make a Liquor that may not be injurious to the Stomach, yet the acid

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Juice, if it were ſo corroſive as Oil of Vitriol, would certainly be injurious and painful to the ſalivatory Ducts, which convey it to the Mouth before it is mix'd with the oleaginous Liquor. But I only ſay it is an Acid, and in ſome degree approaches to the Nature of that Oil. And Nature, which can much better adapt ſeveral Cauſes for the Production of ſuch an Effect than Art, may attain her End by a more temperate Acid. Tho' at the ſame time we may be able to make ſome probable and true Conjectures about the Nature of thoſe Cauſes from Experiments.

It being moſt reaſonable to ſuppoſe, that there are but two ſorts of Juices, of a different Quality, that make the *Saliva*, I do conceive, that four of the eight ſalivatory Glands, or two pair of the four, do ſupply one of theſe Juices, and the other four Glands the other. And this ſeems to be a very good Reaſon, why they are ſo planted, and the Orifice of their Ducts ſo order'd, that the Juice, which is ſupply'd by one Gland, is diſcharg'd into the Mouth, very near to the Orifice, by which the Juice of a different Nature is tranſmitted from another, ſo that they muſt neceſſarily meet and mix together. Thus the *Glandulæ Nuckianæ*, and the *Parotides*, throw in two different Juices by Orifices, which open into the Mouth very near to one another; and the *Glandulæ Maxillares internæ*, and *Sublinguales*, do below ſupply the ſame kind of Juices by Orifices, that open ſo near to one another as to ſecure the Mixture of the two different Juices.

Theſe Glands, I ſay, do between them afford two diverſe ſorts of Liquors, of ſuch a Nature as are apt to ferment upon their firſt Mixture, but perhaps more conſiderably when they come to be digeſted by the Heat of the Stomack. So that the Colluctation, or Fermentation, which attenuates and concocts the Food in the

Stomack, does not ordinarily ariſe between the Aliment and the *Saliva*, but between the ſeveral Parts of the *Saliva* it ſelf. And indeed, if the *Saliva* did not conſiſt of two Juices, whoſe Nature is in ſuch a manner different, as to render them apt to ferment upon their Mixture, it would be very hard to conceive how it ſhould ſo readily and indifferently ſerve for the Digeſtion of all Eatables; how it ſhould ferment with, and diſſolve ſo great a Variety of things, not only of a different, but of a contrary Nature; how it ſhould ferment with Acids as well as Alkalies, digeſt things that are cold as well as hot or temperate; ſome things that are ſalt, others that are inſipid, bitter, and ſweet, mucilaginous, oily, *&c.* But if we ſuppoſe, that the Fermentation, which ſerves for the Digeſtion of the Food, ariſes from a peculiar Difference in the nature of two Juices, which conſtitute the *Saliva*, it will be eaſie to give a rational Account of our Concoction of innumerable things of a different Nature. And this ſeems to be as effectual, and a more certain way to attenuate and diſſolve the groſſer Parts of our Food, than if the Fermentation were made only between the *Saliva* and the Aliment: Beſides, the *Saliva* ſeems to diſcover a Fermentation upon the Mixture of its conſtituent Juices, even at thoſe times when we do not actually eat; for it is always attended with Bubbles, and a Froth, when it has not been at all agitated in the Mouth, and many of thoſe Bubbles will remain for ſome conſiderable time after we have ſpit it out.

Nature therefore having appointed the *Saliva* for the Digeſtion of the Food, has taken care that it ſhall be thrown in upon the Aliment on every ſide. Thus the *Glandulæ Nuckianæ*, and the *Parotides*, ſupply their Juices to that part of the Food, which lies on the outſide of the Gums, between the Cheeks and the Teeth, and the

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Glandulæ Maxillares internæ, and *Sublinguales*, do beſtow their Liquor upon the Meat, which is within the Teeth and Gums. Neither has ſhe had a Regard only to that Supply, which is due to all the Parts of our Food, but likewiſe to the Mixture of the two different Juices of the *Saliva*, which is neceſſary to its Fermentation. And therefore, as I have already obſerv'd, the Orifices of the Ducts, which belong to one ſort of Glands, are placed near the Aperture of a Duct, which conveys a Juice from one of the other Glands. So the Ducts of the *Glandulæ Nuckianæ*, and the *Ductus Stenoniani*, do on each ſide open into the Mouth, near one another; and the ſalivatory Ducts of the *Glandulæ Sublinguales*, and the *Maxillares internæ*, tho' they have diſtinct Orifices, empty themſelves under the ſame *Papillæ*; and the Juices, which are ſupply'd by them, meet there, and flow into the Mouth together.

The ſeveral Parts of the *Saliva* being diſcharg'd into the Mouth in ſuch a manner as to meet and begin a Fermentation, the *Saliva* does, partly as it is agitated with the Food by the Teeth, and ſome other Parts of the Mouth, partly by its own Fluidity inſinuate it ſelf into, and mixes with the Food, and not only moiſtens and ſoftens it, but excites the Fermentation, which is to diſſolve it. And when the Aliment is thus mix'd with the *Saliva*, which ſerves to ferment the whole Maſs, it is then to be convey'd into the Stomack, that great digeſtive Veſſel of the Body, where the Fermentation is not only continued but improved.

The Nouriſhment being convey'd into the Cavity of the Stomack, is there kept for ſome time in a digeſtive Heat, all which time it is under a Fermentation produc'd by the different Parts or Juices of the *Saliva*, which are mixed with it; which Fermentation does firſt agitate the more tenuious or ſubtil parts of the Food, and puts them

them into motion, and ſo with the Fermentation of its own, and thoſe Alimentary Parts, which it firſt communicates a motion to, improv'd by the Heat of the Stomack, the *Saliva* muſt neceſſarily act upon the groſſer Parts. For the inteſtine Motion, which is excited in the Maſs, does not give the Particles, which are fermented, the ſame Tendency, but what is ſo various and confus'd, that they muſt inevitably ſtrike not only one againſt another, but againſt thoſe, which are more groſs, ſo as to attenuate them, ſometimes by a Colliſion, which ſtrikes off ſmaller Particles from the larger Parts; ſometimes by a Compreſſion, when the Particles, which are in motion happen to ſtrike directly againſt any groſſer Part, on every ſide of it; ſometimes by a kind of Exploſion. For without doubt the *Saliva*, which is fluid, inſinuates it ſelf into the Interſtices of the more craſs Parts of the Aliment, and whatever is agitated and expanded in thoſe Interſtices, requiring a larger ſpace for the Freedom of its Motion, and offering a Violence to every thing, that oppoſes its Tendency, will, like Gun-powder included in a Shell, force its way out, and tear to pieces that Matter, which does endeavour to confine it.

Thus the groſſer Parts are broken and divided, until they are at laſt ſo far attenuated as to mix more equally with the Fluid, and with them to make one Pulp or chylous Maſs. And altho' I do not apprehend how the Stomack ſhould by its reciprocal Motions in Inſpiration, and Expiration, be able to break and attenuate any Matter, that will not be ſoften'd and diſſolved by agitation in a Liquid, yet it is certain that theſe Motions, cauſed by the Diaphragme and Abdominal Muſcles in Reſpiration, do make thoſe Parts, which are broken off, as they are diſſolv'd, mix intimately with the more liquid, as the Meat which I digeſted with Oil of Turpentine, and

Oil

Oil of Vitriol, did by agitation mix more equally with the Oils, and became a Pulpament.

As the Juices, which conſtitute the *Saliva*, do ferment upon their Mixture, ſo it is probable that from their Mixture and Fermentation there reſults ſuch a *Tertium quid* as is apt to ferment with the Bile. And therefore, when the Aliment has been under the Fermentation, excited by the *Saliva*, a ſufficient time, it is then thrown into the *Duodenum*, where it meets with the bilious Juice, which flows into that Inteſtine from the Liver, from which a new Fermentation ſeems to begin; and the Commotion of the Parts of the Aliment being ſtill continued, does carry on the Buſineſs of Digeſtion until the Food is perfectly concocted. Tho' it is probable, that this new Fermentation ſerves not only for the more perfect Digeſtion of the Food, but likewiſe for the Separation of the Chyle from the feculent Parts.

Neither do I by a random Gueſs, and an ungrounded Conjecture, ſuppoſe that from the Mixture and Fermentation of the two Juices, which conſtitute the *Saliva*, there reſults a Matter, which is apt to ferment with the Bile. But to me the Notion ſeem'd to be confirm'd by an Experiment that I made. For conſidering with my ſelf that the Bile is generally allow'd to have much of a ſaponary nature, I made a Solution of Soap in fair Water, and mix'd it with the Oils of Turpentine and Vitriol firſt put together, and from their Mixture I obſerv'd a very eaſie and gentle Fermentation, which continued for a conſiderable time.